

IV. Remarks

In the subject Office Action, the Examiner objected to Claims 1 and 14. Specifically, Claim 1 was objected to based on an element lacking proper antecedent basis. Applicants are amending Claim 1 to address this grounds of rejection. Similarly, the Examiner objects to mention of "locking mechanism" in the claims as not shown in the drawings. Applicants have amended independent Claim 1 to delete reference to the "locking mechanism" element and instead the claim now refers to the functioning of the lever arm to cause locking and unlocking of the seat belt retractor. Applicants submit that this function is fully described in the application specification.

Claim 14 was objected to as lacking a description in the application drawings. In response to this grounds for rejection, applicants are canceling Claim 14.

The Examiner's Office Action also rejects Claims 1 through 12 as being anticipated under 35 U.S.C. §102(b) by Takata (U.S. Patent No. 4,314,680). Additional rejections are made under 35 U.S.C. §103 in which Claim 13 is rejected over Takata and further in view of Rogers (U.S. Patent No. 6,386,472). Applicants point out that the rejection of Claim 14 is rendered moot in view of the cancellation of that claim by this amendment.

Applicants respectfully submit that the present invention as claimed is not taught or suggested by the cited prior art references, taken either singularly or in combination.

In the present invention, a damper is provided which restricts movement of an excitation mass of an inertia sensitive motor vehicle seat belt retractor. The damper mechanism operates in a manner to restrict motion of the excitation mass in the vertical direction. The damper does not act to restrict motion of the excitation mass in response to inertial forces causing its displacement in other directions. This invention is specifically oriented toward reducing sensitivity of the inertia sensitive seat belt retractor to accelerations acting in the vertical or "Z-axis" direction. As

explained in the specification, displacements in the vertical direction tend to cause unwanted or "nuisance" locking of the seat belt retractor. As illustrated in the drawings, the damper forms a surface which engages the excitation mass only when the mass is vertically displaced. The excitation mass can freely displace in the lateral directions in response to inertial forces without engaging the damper, and thus movement of the excitation mass in those directions is unimpeded by the damper. Applicants respectfully submit that these features are not described by the cited prior art references.

The Takata '680 reference discloses an inertia responsive actuating mechanism for a seat belt retractor. As illustrated, the mass (22) is movable and causes rotation of a locking lever (28) about a pivot (30). This reference does not describe the desirability or function of rendering the device relatively insensitive to vertical axis displacements of the inertia mass. As illustrated in the drawings, it is clear that the actuating lever would displace freely in response to a vertical displacement of the excitation mass. There are no damper elements present in Takata that would prevent vertical lifting of the inertia sensitive mass. As stated in column 5, lines 8 through 11, the Takata reference states "in the event of a collision, upset, or sudden stop of a vehicle that produces acceleration of the base 12 in any direction in a suitable predetermined range (0.3 g to 0.7 g), the inertia of the mass 22 produces a force F (see Fig. 4a) of sufficient magnitude to produce movement of the mass..." (emphasis added). Thus, this reference clearly indicates that the inertia sensitive mass is sensitive to accelerations in all directions. This of course would include vertical displacements as described previously. The Examiner cites column 5, lines 42 through 46 of Takata, as disclosing force conditions serving as a damper in response to a given level of acceleration. Applicants respectfully submit that this passage in no way suggests providing a differential sensitivity based on the direction of inertial forces. Mentioning of sensitivity to a "given level of acceleration" is equivalent to providing a suitable gap such that the system does not lock in response to slight accelerations but does not relate to the direction of force.

The Rogers '472 reference is cited as grounds for rejection of Claim 13 in combination with the Takata reference previously described. The Rogers reference discloses an electromagnet which is provided to affect motion of the inertia mass.

specification indicates that energization of the electromagnet is provided to prevent motion of the inertia mass until forces exceed a predetermined level. Although the electromagnet is provided as a spring or damper function, it is not sensitive based on direction of external forces. The Rogers specification makes no reference to differentially affecting vertical displacements of the mass versus displacements caused by lateral acceleration. Moreover, even if the electromagnet of Rogers were deemed a "damper" it does not contact the inertia mass as indicated in Claim 1.

Applicants are submitting a number of amendments to many of the claims to improve the clarity with which the invention is claimed. Specifically, in Claim 1, various elements are amended to provide proper antecedent basis. In addition, the differential sensitivity of the damper to displacements in various directions is described. Additional amendments are made to claims which depend from Claim 1.

In view of the foregoing, Applicants respectfully submit that the claims are now in condition for allowance and such action by the Examiner is earnestly solicited.

Respectfully submitted,

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Date



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